

Before the  
**Federal Communications Commission**  
Washington DC 20554

In the Matter of	)	
	)	
Use of Spectrum Bands Above 24 GHz for	)	GN Docket No. 14–177
Mobile Radio Services	)	
	)	
Establishing a More Flexible Framework to	)	IB Docket No. 15–256
Facilitate Satellite Operations in the 27.5–28.35	)	
GHz and 37.5–40 GHz Bands	)	
	)	
Petition for Rulemaking of the Fixed Wireless	)	RM–11664
Communications Coalition to Create Service	)	
Rules for the 42–43.5 GHz Band	)	
	)	
Amendment of Parts 1, 22, 24, 27, 74, 80, 90,	)	WT Docket No. 10–112
95, and 101 To Establish Uniform License	)	
Renewal, Discontinuance of Operation, and	)	
Geographic Partitioning and Spectrum	)	
Disaggregation Rules and Policies for Certain	)	
Wireless Radio Services	)	
	)	
Allocation and Designation of Spectrum for	)	IB Docket No. 97–95
Fixed–Satellite Services in the 37.5–38.5 GHz,	)	
40.5–41.5 GHz and 48.2–50.2 GHz Frequency	)	
Bands; Allocation of Spectrum to Upgrade	)	
Fixed and Mobile Allocations in the 40.5–42.5	)	
GHz Frequency Band; Allocation of Spectrum	)	
in the 46.9–47.0 GHz Frequency Band for	)	
Wireless Services; and Allocation of Spectrum	)	
in the 37.0– 38.0 GHz and 40.0–40.5 GHz for	)	
Government Operations	)	

**COMMENTS OF THE  
FIXED WIRELESS COMMUNICATIONS COALITION**

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January 31, 2017

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**COMMENTS OF THE  
FIXED WIRELESS COMMUNICATIONS COALITION**

The Fixed Wireless Communications Coalition, Inc. (FWCC)<sup>1</sup> files these comments on thirteen Petitions for Reconsideration in the above-captioned dockets.

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<sup>1</sup> The FWCC is a coalition of companies, associations, and individuals actively involved in the fixed services—*i.e.*, terrestrial fixed microwave communications. Our membership includes manufacturers of microwave equipment, fixed microwave engineering firms, licensees of

## **A. Summary**

Satellite providers object to the rules on siting earth stations, which are designed to protect the Upper Microwave Flexible Use Service (UMFUS) in shared areas. Those rules bar earth station protection zones that together cover more than 0.1 percent of the license area population, allow no more than three earth stations per license area, and rule out protection zones that cover a major event venue, arterial street, interstate or U.S. highway, urban mass transit route, passenger railroad, or cruise ship port. We suggest the limit of three earth stations per license area is unnecessary, so long as the Commission retains the maximum of 0.1 percent population in the aggregate, accounting for all protection zones in the license area. The ban on protection zones around event venues, etc., must remain, as sites of this kind will be essential to UMFUS business plans.

We disfavor the proposal for a separate database of UMFUS locations to be used for unilateral earth station coordination as being unnecessarily expensive and complex, and as creating opportunities for error. Bilateral frequency coordination has succeeded in other bands for decades, thanks to good cooperation among the parties. We expect that cooperation to continue here, and bilateral coordination to remain practical and effective.

One satellite party misreads a 1996 Commission order as promising that satellite operations would have co-primary status with UMFUS at 28 GHz. The order cannot reasonably

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terrestrial fixed microwave systems and their associations, and communications service providers and their associations. The membership also includes railroads, public utilities, petroleum and pipeline entities, public safety agencies, cable TV providers, backhaul providers, and/or their respective associations, communications carriers, and telecommunications attorneys and engineers. Our members build, install, and use both licensed and unlicensed point-to-point, point-to-multipoint, and other fixed wireless systems, in frequency bands from 900 MHz to 95 GHz. For more information, see [www.fwcc.us](http://www.fwcc.us).

be construed to say that. The party's other arguments for a co-primary allocation are inconsistent with both the law and the facts.

Finally, and in brief: Simple fairness requires modifying UMFUS performance requirements for LMDS incumbents. License-by-rule is appropriate at 37-37.6 GHz. Operability requirements across 37/39 GHz must be postponed until sharing mechanisms are worked out. And the Commission must continue to allow fixed omnidirectional antennas in the 28 and 37/39 GH bands.

## **B. Siting of FSS Earth Stations**

### ***1. The Commission should retain limitations on the siting of FSS earth stations to protect UMFUS users.***

Several satellite companies object to Sections 25.136(a)(4)(ii) and 25.136(c)(2), which limit Fixed Satellite Service (FSS) interference or protection zones to 0.1 percent of the license area population.<sup>2</sup> They assert that the rule precludes concentrating earth stations in low-population areas.

EchoStar, Hughes, and Inmarsat instead propose to ban FSS earth stations in “urban cores,” which they define to include circular regions in and around forty cities whose populations equal or exceed that of Tucson AZ, *i.e.*, populations larger than roughly half a million.<sup>3</sup>

SES Americom and O3B suggest setting population limits in the interference zone according to population of the county, as follows:

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<sup>2</sup> EchoStar, Hughes, and Inmarsat at 15-20; Boeing at 24-25; SES Americom and O3B at 5-10.

<sup>3</sup> EchoStar, Hughes, and Inmarsat at 19-20. For a list of the proposed “urban cores,” *see* Letter from Stacey G. Black, AT&T Services, Inc., and Jennifer A. Manner, Vice President, EchoStar Corporation, to Marlene H. Dortch, Secretary, FCC, in GN Docket No. 14-177 *et al.* (filed April 6, 2016) (Addendum).

Type of County	Population	Interference Zone Limit
high density	greater than 300,000	0.2%
low-to-medium density	6,000 to 300,000	600 people
very low density	fewer than 6,000	10%

Satellite companies further object to Sections 25.136(a)(4)(1) and 25.136(c)(1), which limit earth stations in the aggregate to three per license area.<sup>4</sup>

In the particular case where LMDS county licenses were converted from BTA licenses, SES Americom and O3B want the counties within the BTA “pooled” for purposes of applying the above rules.<sup>5</sup>

Petitioners overlook that the Commission aided the concentration of earth stations in low-population areas, notwithstanding the three-per-license-area limit, by counting multiply collocated or contiguously located earth stations as one.<sup>6</sup>

Nonetheless, cases may arise where the rules combine so as to limit the siting of earth stations in areas where they will do the least harm. We do not oppose dropping the three-per-license-area limit while keeping the 0.1 percent population limit. In saying this, we rely on the rule that applies the 0.1 percent limit to the interference zones of all earth stations in the license area “in the aggregate.”<sup>7</sup> That is, if FSS operators collectively site, say, ten earth stations across a license area, the combined interference zones of all ten earth stations taken together must cover less than 0.1 percent of the license area population.

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<sup>4</sup> EchoStar, Hughes, and Inmarsat at 20-21; Boeing at 23-24.

<sup>5</sup> SES Americom and O3B at 12-13.

<sup>6</sup> 47 C.F.R. §§ 25.136(a)(4)(i), (c)(1).

<sup>7</sup> 47 C.F.R. § 25.136(a)(4)(ii), (c)(2).

We oppose pooling the counties within an LMDS BTA, as this would allow FSS operators to concentrate earth stations in ways that could impair UMFUS service to substantial portions of communities.

The proposal by EchoStar, Hughes, and Inmarsat to ban FSS earth stations only in “urban cores” is wholly inadequate, at least as they define “urban core.” Their list would exclude from urban cores, and thus allow unlimited earth stations in, such major population centers as Albuquerque, Colorado Springs, Omaha, Tampa, and dozens of others. People in small cities and large towns should be able to use UMFUS without interference.

We have no objection in principle to setting different population limits in counties having different population densities, but the numbers proposed by SES Americom and O3B for this purpose are too high, as they would unacceptably increase allowable interference, relative to the present rules. We would not oppose the idea at half the numbers suggested by SES Americom and O3B, namely:

Type of County	Population	Interference Zone Limit
high density	greater than 300,000	0.1%
low-to-medium density	6,000 to 300,000	300 people
very low density	fewer than 6,000	5%

**2. *The Commission should continue to exclude FSS earth stations from areas having high daytime or transient populations.***

Several satellite companies object to Sections 25.136(a)(4)(iii) and 235.136 (c)(4), which bar an FSS earth station protection zone from containing any major event venue, arterial street, interstate or U.S. highway, urban mass transit route, passenger railroad, or cruise ship port.<sup>8</sup> EchoStar, Hughes, and Inmarsat note the absence of definitions for these terms.<sup>9</sup>

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<sup>8</sup> EchoStar, Hughes, and Inmarsat at 11-15; SES Americom and O3B at 14-15.

<sup>9</sup> EchoStar, Hughes, and Inmarsat at 14-15.

The Commission must retain the rule. Given the short range and high data density characteristics of UMFUS, any location where large numbers of people regularly congregate in small areas promises to be a potential market. We foresee offerings at the kinds of locations listed in the rule, along with downtown business districts, as being key to the UMFUS business model.

**3. *A separate UMFUS database for FSS earth station coordination is unnecessary.***

Some satellite companies object to mandated bilateral frequency coordination with individual UMFUS licensees, as required under Sections 25.136(a)(4)(iv) and 25.136(c)(4). They fear that UMFUS licensees will reject a succession of proposed FSS sites without suggesting some that might work—what one pleading likens to FSS operators playing “a very large-scale game of Battleship.”<sup>10</sup> They call instead for a different, unilateral model of coordination based on a separate database of operating UMFUS facilities.<sup>11</sup> Some parties suggest coordinating through a “spectrum access system” (SAS) like that proposed for the 47 GHz band.<sup>12</sup>

We think the petitioners are unduly pessimistic about the coordination process. In sixty years of bilateral frequency coordination between lower-frequency FSS earth stations and the fixed service, cooperation has generally been high. To be sure, there are differences between that process and frequency coordination with UMFUS. But the motivations for cooperation are the same: UMFUS operators will have every incentive to work with FSS operators because cooperatively sited earth stations will cause the least disruption to UMFUS.

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<sup>10</sup> EchoStar, Hughes, and Inmarsat at 22.

<sup>11</sup> EchoStar, Hughes, and Inmarsat at 21-23; SES Americom and O3B at 17-18. *See also* Boeing at 6.

<sup>12</sup> EchoStar, Hughes, and Inmarsat at 22.



We therefore oppose a separate database as being unnecessary, and also as adding layers of cost and complexity, and as multiplying opportunities for error.

We also oppose using an SAS for coordination, at least until the technology has proven itself. In the context of 47 GHz, we said:

The very slow rollout of SAS's much simpler predecessor technology—the TV white space database, which itself has not yet been tested with mobile devices in commercial use—raises doubts about the wisdom of locking in rules now that make interference protection turn on SAS.<sup>13</sup>

For the same reasons, we think it unwise to rely on SAS technology here, pending the satisfactory outcome of realistic testing.

### **C. LMDS and 37-39 GHz Issues**

#### ***1. FSS co-primary status in the 28 GHz band is not justified.***

The Satellite Industry Association (SIA) seeks a co-primary allocation for FSS with UMFUS in the 28 GHz band.<sup>14</sup> It advances two reasons: that co-primary status would better protect space stations from UMFUS interference,<sup>15</sup> and would foster good faith negotiation and cooperation between FSS and UMFUS operators.<sup>16</sup>

We see no merit in either argument. As to the first, the Commission has held that the satellite industry has no legal right to protection from aggregate interference, and the Commission does not believe harmful aggregate interference is likely from 28 GHz mobile

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<sup>13</sup> Reply Comments of the FWCC in GN Docket No. 14-177 *et al.* at 2-3 (filed Sept. 30, 2016).

<sup>14</sup> Satellite Industry Association at 5-11.

<sup>15</sup> Satellite Industry Association at 7-8.

<sup>16</sup> Satellite Industry Association at 8.

operations.<sup>17</sup> SIA has not presented data or arguments to counter these points. The Commission has directed the relevant bureaus to open a docket specifically to study the issue.<sup>18</sup> SIA can make its case there. As to SIA's second argument, we explained above that we expect full cooperation between UMFUS and FSS operators, regardless of their relative allocation status.

The Commission has already given FSS one major benefit of co-primary status—and more:

Notwithstanding that secondary status [of FSS], an earth station in the 27.5-28.35 GHz band that meets one of the criteria listed below may operate consistent with the terms of its authorization *without providing any additional interference protection to stations in the Upper Microwave Flexible Use Service*.<sup>19</sup>

This effectively elevates FSS to primary status *over* UMFUS, so far as interference from FSS to UMFUS is concerned, so long as FSS meets its siting obligations.

SIA makes the extraordinary claim that FSS had a “reasonable expectation of primary status.” It cites a 1996 LMDS order as saying that

28 GHz FSS operations would have “licensing priority vis-à-vis any third service allocated domestically or internationally in the band.”<sup>20</sup>

SIA misquoted the Commission. Here is the full sentence from which SIA took its excerpt:

Lower-case letters indicate services in a particular band segment which also have licensing priority vis-a vis any third service allocated domestically or internationally in the band, but have no licensing priority over the service in capital letters in the band segment and must operate on

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<sup>17</sup> *Use of Spectrum Bands Above 24 GHz for Mobile Radio Services*, Report and Order and Further Notice of Proposed Rulemaking, 31 FCC Rcd 8014 at ¶ 69 (2016).

<sup>18</sup> *Id.*

<sup>19</sup> 47 C.F.R. § 25.136(a) (emphasis added).

<sup>20</sup> Satellite Industry Association at 6, *citing Local Multipoint Distribution*, First Report and Order, 11 FCC Rcd 19005 at ¶ 44 (1996).

a non-interference basis and must accept interference vis-a-vis that service.<sup>21</sup>

The passage merely explains the use of upper-case and lower-case letters in the allocation table. It makes no promise of any kind to FSS.

Nothing in SIA's argument justifies any expectation of primary status.

**2. *The Commission should adjust performance requirements for incumbent LMDS licensees.***

Several petitioners note that subdividing 28 GHz LMDS licenses from BTAs into counties will increase and complicate incumbents' buildout requirements. They propose several remedies:

- allow incumbent LMDS licensees to keep their original license areas;<sup>22</sup>
- exempt incumbents from new performance requirements;<sup>23</sup>
- allow licenses to build out just one county, or extend construction deadline for incumbents until 2028;<sup>24</sup>
- eliminate or relax LMDS coverage obligations in rural counties,<sup>25</sup> and exclude counties that encompass tribal or federal land;<sup>26</sup>
- give 28 GHz and 39 GHz incumbents the option of meeting current performance requirements at the end of their current license term, and of meeting the new requirements at the same time as new entrants;<sup>27</sup>
- allow LMDS incumbents to carry over LMDS service obligations; or allow a licensee to count populations covered in neighboring counties as part of its

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<sup>21</sup> *Local Multipoint Distribution*, First Report and Order, 11 FCC Rcd 19005 at ¶ 44 (1996) (footnote omitted).

<sup>22</sup> Competitive Carriers Association at 9-11; Rural LMDS Licensees at 4-6.

<sup>23</sup> Competitive Carriers Association at 11.

<sup>24</sup> Rural LMDS Licensees at 7-8.

<sup>25</sup> Nextlink Wireless at 3-5.

<sup>26</sup> Nextlink Wireless at 6-7.

<sup>27</sup> T-Mobile at 8-10.

performance showing; or provide a safe harbor that references the entire BTA; or extend incumbents' deployment deadlines.<sup>28</sup>

We agree that LMDS incumbents need relief from requirements adopted long after they obtained their licenses, and which would be onerous if applied unchanged. We can support any of the above proposals. For simplicity and ease of application, we think T-Mobile has the best answer: let 28 GHz and 39 GHz incumbents meet their current performance requirements at the close of the current license term, and meet the new Part 30 requirements at same time as new UMFUS entrants must meet those requirements.

**3. *Retain license-by-rule for non-federal users at 37-37.6 GHz.***

Several parties ask that the 37-37.6 GHz band be licensed for exclusive use as among non-federal users.<sup>29</sup>

The millimeter wave bands have very large amounts of spectrum collectively allocated for exclusive licensing and unlicensed use. We think at least one band should be available for opportunistic use on a licensed basis, and for that reason we favor leaving the rule unchanged.

**4. *The Commission should postpone required operability across the 37/39 GHz band.***

Several parties ask the Commission to eliminate the requirement in Section 30.28 for operability across the entire 37/39 GHz band, chiefly on the ground that sharing mechanisms do not yet exist, coupled with uncertainty about expanded federal operations.<sup>30</sup> The

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<sup>28</sup> Nextlink Wireless at 8-11.

<sup>29</sup> CTIA at 24-26; 5G Americas at 3-9; Competitive Carriers Association at 6-7. One adds that federal use should not have co-equal status, given limited federal use. 5G Americas at 3-9.

<sup>30</sup> T-Mobile at 10-12; Competitive Carriers Association at 14-15; 5G Americas at 9-11.

Telecommunications Industry Association (TIA) suggests that a device be deemed to meet the requirement if it is tunable across the band on each air interface it uses to operate in the band.<sup>31</sup>

We agree with the petitioners that the operability requirement must be postponed, at least until the sharing regime is fully specified. If the Commission prefers to have a requirement in place now, the TIA proposal will make a suitable interim alternative.

**5.     *The Commission must allow fixed omnidirectional antennas in the 28 and 37/39 GHz bands.***

One party asks the Commission to disallow fixed omnidirectional antennas in the 28 and 37/39 GHz bands.<sup>32</sup>

The ban on fixed omnidirectional antennas is appropriate for traditional Part 101 fixed point-to-point systems. If applied to UMFUS, however, the rule would effectively prevent the deployment of UMFUS base stations that must communicate continuously with multiple units in motion. In order for UMFUS to be practicable, the Commission must allow its operators to invoke the Section 30.406(a) exception for omnidirectional antennas.

**6.     *The Commission should keep subpart E in Part 30.***

One party objects to having rules in Part 30 that govern fixed point-to-point and fixed point-to-multipoint systems. It asks the Commission to move these back to Part 101 on the ground that licensees might otherwise mistakenly apply the LMDS and 39 GHz fixed rules to all of UMFUS.<sup>33</sup>

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<sup>31</sup> Telecommunications Industry Association at 5-6.

<sup>32</sup> Boeing at 20-21.

<sup>33</sup> Boeing at 18-20.

We think the Commission has adequately addressed this concern by segregating the fixed point-to-point and fixed point-to-multipoint rules into a separate subpart E. We suggest the structure of the rules be left unchanged.

### **CONCLUSION**

The Commission should grant and deny the Petitions for Reconsideration as detailed above.

Respectfully submitted,

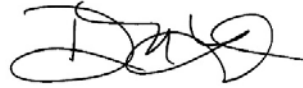


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January 31, 2017

**CERTIFICATE OF SERVICE**

I, Deborah N. Lunt, secretary for the law firm of Fletcher, Heald & Hildreth, PLC, hereby state that true copies of the foregoing COMMENTS were sent by first-class mail, postage prepaid, to the attached service list, this 31<sup>th</sup> day of January 2017.

A handwritten signature in black ink, appearing to read 'D. N. Lunt', with a stylized, cursive flourish at the end.

Deborah N. Lunt

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